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## **VIRAL HEPATITIS AND THE RUSSIAN WAR IN CHECHNYA**

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The ill-equipped and ill-prepared Russian Army that staggered into and out of the war in Chechnya experienced several critical health problems. The all-too-familiar Russian problem of lack of field sanitation was again apparent as 95% of the infectious disease among the Russian combatants was passed through fecal-oral transmission. <sup>1</sup> A modest 3.7% of infectious disease was passed through airborne transmission and the other 1.3% were other modes of infection. Over half of the intestinally-related infections (53.2%) were from viral hepatitis while 27.7% were from shigellosis and 20.1% were from enterocolitis. <sup>2</sup> Outbreaks of diphtheria, cholera, malignant anthrax, and plague also threatened the health of the Russian soldiers. <sup>3</sup> There were approximately 400 diagnosed cases of cholera in Chechnya in 1994. <sup>4</sup> Acute viral hepatitis and cholera were the two major diseases that Russian medical personnel had to contend with. Both are endemic to squalid living conditions and confined living space found in ill-regulated field camps and deployment areas.

Initially, Russian laboratory personnel deployed to Chechnya lacked the diagnostic tools needed to differentiate among hepatitis A, B, C, D and E--a necessary distinction so that proper preventive measures could be taken within the deployed forces. The Russian military introduced an Israeli diagnostic system from the "Organics" firm and a Russian diagnostic system from Nizhny Novgorod which allowed these laboratory personnel to develop a methodology for identifying the various types of hepatitis. <sup>5</sup> The results of their findings are shown on the following table:

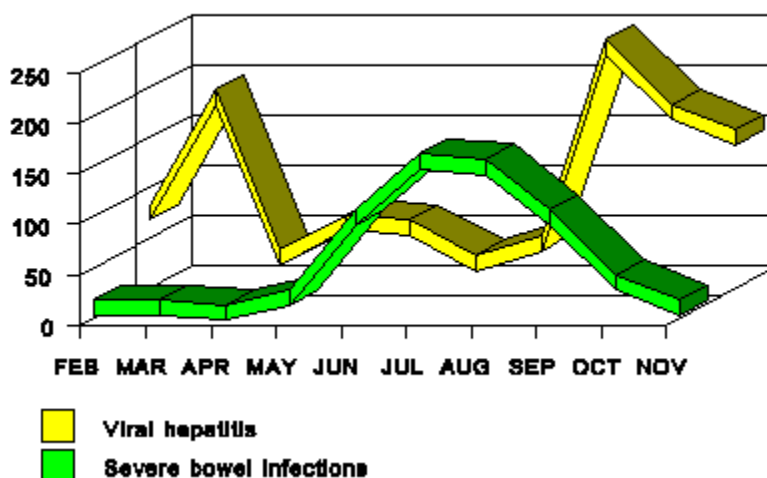
<b>Disease</b>	<b>Chechnya</b>	<b>Northwest region (Leningrad military district and Baltic Fleet)</b>	<b>Southern region (Black Sea Fleet)</b>
<b>Hepatitis A</b>	<b>86.1%</b>	<b>64.9%</b>	<b>63.9%</b>
<b>Hepatitis B</b>	<b>4.3%</b>	<b>14.9%</b>	<b>8.2%</b>

<b>Hepatitis C</b>	<b>0.5%</b>	<b>2.0%</b>	<b>1.6%</b>
<b>Hepatitis E</b>	<b>0%</b>	<b>0.9%</b>	<b>0%</b>
<b>Combined hepatitis infections</b>	<b>1.0%</b>	<b>13.7%</b>	<b>16.5%</b>
<b>Nondifferentiated hepatitis (nonA, nonB, nonC, nonD, nonE)</b>	<b>8.1%</b>	<b>3.6%</b>	<b>9.8%</b>

**Table 1: Percentage of types of hepatitis in the Russian Armed Forces by region <sup>6</sup>**

During the war, Russian soldiers frequently lacked clean drinking water, clean clothing, hot rations and bathing facilities. Personnel experienced problems with lice, skin diseases and a rapidly growing population of rats. Hepatitis A normally results from drinking contaminated water or from inadequate waste disposal which contributes to the fecal-oral mode of transmission. This lack of field sanitation among Russian forces in Chechnya stands out when compared with the military hepatitis percentages found in the northwest region (the Leningrad Military District and Baltic Fleet-the area around St. Petersburg) and the southern region (the Black Sea Fleet in Crimea). While the rate of troops sick with acute hepatitis A is lower for the war in Chechnya than the war in Afghanistan (95%) <sup>7</sup>, it is still much higher than those areas where the troops can stay cleaner and have access to clean drinking water.

### Russian Brigade Disease Rate



**Figure 1: Disease rate in Chechnya in 1995**

Although complete casualty and disease records for the war in Chechnya have not been released, the records maintained by the medical company of a separate brigade headquartered in Khankala <sup>8</sup> (in the eastern suburbs of the capital city of Grozny) show the cyclical nature of hepatitis and intestinal infections such as shigellosis and enterocolitis. The results are shown in figure 1. The summer increase in acute intestinal infections preceded the fall spike in hepatitis by two to three months and was a precursor to the hepatitis infection. <sup>9</sup> The peak of 240 hepatitis cases in October in this one brigade is remarkable. The confined living conditions of the cold weather months undoubtedly aided in the spread of hepatitis. The Russian Ministry of Defense struggled

to maintain field units in Chechnya at 60% strength and Russian brigades were lucky to muster 1,500 personnel. The loss of over 200 personnel to disease would practically render a brigade combat ineffective. Apparently there were several times during 1995 when the Khankala brigade was not combat effective due to disease alone.

When hepatitis strikes a unit, it can be evenly spread across the unit, but more likely, it will concentrate in pockets within that unit. Thus, the brigade might lose its fire direction center, its maintenance section, a key maneuver element or its headquarters to the disease. The effect of such disease pockets is far more crippling to a unit since it is harder to cover the loss of a critical section rather than the loss of personnel spread evenly across several sections. The Russian Army in Chechnya, faced with chronically undermanned units; shortages in clothing, rations and equipment; a determined enemy fighting on its own territory; severe battle losses <sup>10</sup> and an increasingly unpopular war, could little afford to lose more personnel to preventable disease.

Russian medical analysts tried to determine the causes and solutions to the scourge of hepatitis. They examined the records of hepatitis patients in the above brigade as well as the military hospital at Vladikavkaz. Their analysis showed that hepatitis is a fairly democratic disease. It struck officers and conscripts roughly in proportion to their population in the force. It showed no preference for personnel from any particular geographic region or those from the city or countryside. It further showed no preference for soldiers living in tents or in dugouts or those who ate out of a common kettle or from individual plates. For 90.2% of the patients, this was their first bout with hepatitis. 97.7% of the patients contracted acute hepatitis in Chechnya, while the remaining 2.3% contracted it prior to arrival in Chechnya. <sup>11</sup>

The main culprit in the transmission of hepatitis was the water. The local water supply was disrupted and repaired several times and although water was sporadically pumped through the pipes, it was not necessarily clean. Medical company water testing in the above-mentioned brigade revealed an increase in the average E Coli count during the summer and fall. In June it stood at 18 parts per 1,000, whereas it had increased to 55.8 parts per 1,000 in September. Immuno-enzymatic testing of the brigade's water supply showed viral contamination of 43.8% of the water trucks, trailers and Lister bags. Antigens for hepatitis A were present in 50% of the contaminated samples and rotavirus were in 37.5% of the contaminated samples. The brigade chlorinated its water irregularly and not always well. Surveys showed that 86.5% of the patients never cleaned their canteens and 56% of the patients never used their canteens. About 25% of the patients did not use the issue halazone tablets to purify their drinking water because they objected to the taste. About 6% of the patients used some sort of filter for their water. Of the patients, 59.6% drank tap water, 40.4% drank boiled water or tea. Surveys showed that patients had drunk untreated water rarely and only under extreme circumstances. Some 26.9% of the patients (primarily officers) had refused to use tap water the entire time that they were in Chechnya. Yet 96.2% of the patients had used tap water for washing and brushing their teeth (the other 3.8% had not bathed in Chechnya because of the lack of opportunity). Contaminated tap water was a main culprit. Patients who had been careful to drink only boiled water were infected by dishes and serving utensils which had been washed in contaminated tap water. Bacilli from the human intestinal tract were present in 60-80% of the wash water tested. A disturbing 3.9% of the patients worked in food handling or water distribution. <sup>12</sup>

Russian Army Medical personnel have drawn some lessons from their duel with hepatitis in Chechnya. They are:

1. Deployed personnel must be screened early to detect any onset of disease. Suspect personnel must be tested using the "Organics" system which works well in the field. Personnel testing positive for hepatitis A, B and C (which can be determined in three and a half hours) need to be sent to the military hospital for four or five days observation in an isolation ward. Laboratory testing needs to focus on the detection of specific antigens for the various types of hepatitis rather than just E Coli (which predominantly indicates the presence of hepatitis A).
2. Bacilli from the human intestinal tract are easy to detect in a standard water sample, but enteroviri are present in water in much lower concentrations (a thousand times or more lower), so the water sample needs to be concentrated and that concentrate then needs to be analyzed by modern sensitive methods since smaller concentrations of enteroviri may result in infection.<sup>13</sup>

Based on the Russian example, the U.S. Army needs to continue its vigilance in protecting the water supply of its soldiers and taking preventive measures to combat disease. Food handling procedures and water purification and distribution procedures need to be understood and implemented in garrison long before deployment. When the unit is alerted for deployment, these procedures need to be reviewed and the practices reinforced. When a unit is deployed into a combat zone, food handling and water purification standards must be rigidly enforced. Leaders at every level must ensure that field sanitation is always practiced and the fighting strength of the force is preserved. Junior NCOs are particularly crucial in enforcing sanitation standards. No commander can afford to lose fifteen percent of his force to a preventable disease.<sup>14</sup>

### *Endnotes*

1. For an earlier look at the impact of poor field sanitation on Russian forces, see Lester W. Grau and William A. Jorgensen, "Medical Support in a Counter-Guerrilla War: Epidemiologic Lessons Learned in the Soviet-Afghan War", U.S. Army Medical Department Journal, May/June 1995, 41-49.[BACK](#)
2. P. I. Ogarkov, V. V. Malyshev, S.A. Tsutsiev and N. V. Mikhaylov, "Epidemilologicheskaya kharakteristika i laboratornaya diagnostika virusnykh gepatitov v federal'nykh voyskakh na territorii chechenskoy respubliki" [Epidemiologic characteristics and laboratory diagnosis of viral hepatitis among federal forces deployed in the Chechen Republic], Voenno-meditsinskiy zhurnal' [Military-medical journal], August 1996, 48.[BACK](#)
3. Petr Altunin and Ivan Ivanyuk, "Meditsina na perednem krae" [Medicine at the forward edge] (an interview with Colonel General Ivan Chizh, Chief of Military Medicine for the Russian Minister of Defense), Krasnaya zvezda [Red star], 14 June 1995, page 2.[BACK](#)
4. Nikolay Gritchin, "Vzryv epidemiy v Chechne mozhet udarit' po vsej Rossii" [The epidemic explosion in Chechnya may strike all of Russia], Izvestia [News], 22 February 1995, page 1.[BACK](#)

5. Ogarkov et al, 48.[BACK](#)
6. Ibid, 51.[BACK](#)
7. Grau and Jorgensen, "Medical support...", 43.[BACK](#)
8. Probably the 205th Separate Motorized Rifle Brigade.[BACK](#)
9. Ogarkov et al, 50. [BACK](#)
10. For a discussion of dead and wounded in Chechnya, see Lester W. Grau and William A. Jorgensen, "Handling the Wounded in a Counter-guerrilla War: The Soviet/Russian Experience in Afghanistan and Chechnya", U.S. Army Medical Department Journal, March-April 1997.[BACK](#)
11. Ogarkov et al, 52-53.[BACK](#)
12. Ibid, 52. [BACK](#)
13. Ibid, 53-54.[BACK](#)
14. The authors thank Mr. Robert Love for his excellent translation assistance with Russian medical terms and concepts and Mr. Tim Thomas for his commentary on the article. Both men work for the Foreign Military Studies Office at Fort Leavenworth.[BACK](#)